AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method for ~~generating an output value for~~ processing a media signal ~~that is a mathematical function of an input data value for said media signal~~, comprising the steps of:

using a Chebyshev minimax approximation technique to determine a plurality of polynomials which approximate ~~said~~ a mathematical function over a plurality of corresponding data intervals, wherein the length of each interval is individually defined so that the approximation of the function over that interval by its corresponding polynomial has an error less than a predetermined threshold for all of the intervals,

storing the coefficients that define each polynomial,

in response to receipt of said ~~input data value~~ media signal, determining the interval in which ~~said input~~ a data value of said media signal is located, and retrieving the stored coefficients for the polynomial corresponding to that interval;

evaluating the polynomial for the determined interval with said input data value; ~~and~~

revising said data value in accordance with the result of said evaluation to thereby transform said media signal; and

~~generating said output value for~~ outputting said transformed media signal.

Claims 2. - 3. (Canceled)

4. (Original) The method of claim 1, wherein said mathematical function is a power function.

5. (Previously Presented) A method for generating a media output signal which is a power function of a media input signal in a vector processing architecture, comprising the steps of:

determining polynomials which respectively approximate said power function over contiguous ranges in a data interval, wherein each range has a length which is individually defined so that the approximation of the power function over that range by its respective polynomial has an error less than a predetermined threshold for all of the ranges;

storing the coefficients that define said polynomials,

in response to receipt of multiple input data values of a media signal, determining the range in which each data value is located;

retrieving the stored coefficients for each of the determined ranges;

evaluating the polynomials whose coefficients are retrieved with the associated input data values in a vectorized manner; and

generating multiple output values corresponding to said input data values to form said media output signal.

6. (Original) The method of claim 5, wherein said polynomials are determined by means of a Chebyshev minimax approximation technique.

7. (Original) The method of claim 5, wherein said polynomials and ranges are determined such that the maximum error between said output values and the power function is approximately equal for each of said ranges.

8. (Original) The method of claim 5 wherein each of said polynomials is of the same order.

9. (Original) The method of claim 5 wherein said polynomials are of different respective orders, and further including the step of promoting lower-order polynomials to the highest order of the polynomials associated with the retrieved coefficients prior to said evaluating step.

Claims 10 –15. (Canceled)

16. (Previously Presented) A vector processing system, comprising:

a memory storing plural sets of coefficients that define a plurality of polynomials which approximate a power function over a plurality of contiguous respective ranges of data values, wherein each range has a length which is individually defined so that the approximation of the power function over that range by its respective polynomial has an error less than a predetermined threshold for all of the ranges; and

a vector processing engine that is responsive to receipt of multiple data input values and a command to apply the power function to those input data values, to

determine the range in which each data input value is located, to retrieve the set of stored coefficients for each determined range and load them into register locations that respectively correspond to said data input values, and to compute multiple output values from said data input values and the loaded coefficients.

17. (Canceled)

18. (Original) A method for processing an image for display in a computer system, comprising the steps of:

receiving an input display value for a pixel of the image in a first color space;

generating a corrected display value in a second color space by evaluating a second-order polynomial that approximates a power function corresponding to the gamma of a display device, in accordance with said input display value;

processing said corrected display value in said second color space to produce a processed display value for said pixel; and

converting said processed display value to said first color space by evaluating a polynomial that is the inverse of said second-order polynomial in accordance with said processed display value.

19. (Original) The method of claim 18 wherein said processing comprises combining the corrected display value with another display value in said second color space to generate a blended display value for said pixel.

20. (Canceled)

21. (Previously Presented) A computer-readable medium containing:

plural sets of coefficients that define respective polynomials which approximate a power function over corresponding ranges in a piecewise manner, wherein each range has a length which is individually defined so that the approximation of the power function over that range by its respective polynomial has an error less than a predetermined threshold for all of the ranges; and

a program that is responsive to receipt of multiple input data values that define a media signal to determine which one of said ranges encompasses each of said input data values, retrieve the set of coefficients that corresponds to each determined range, and simultaneously evaluate the polynomials defined by each retrieved set of coefficients with the associated input data values to generate multiple output values at the same time that define an output media signal.

22. (Original) The computer-readable medium of claim 21, wherein each of said polynomials is of the same order.

23. (Original) The computer-readable medium of claim 21, wherein said polynomials are of different respective orders, and wherein said program executes the step of promoting lower-order polynomials to the highest order of the polynomials associated with the retrieved coefficients prior to said evaluating step.

24. (Previously Presented) The method of claim 1 wherein said media signal is a display signal.

25. (Previously Presented) The method of claim 1 wherein said media signal is an audio signal.

26. (Previously Presented) The method of claim 1, wherein said polynomials and intervals are determined such that the maximum error between said output values and said function is approximately equal for each of said intervals.

27. (Previously Presented) The method of claim 1, wherein said polynomials are of different respective orders, and further including the step of promoting lower-order polynomials to the highest order of the polynomials associated with the retrieved coefficients prior to said evaluating step.

28. (Previously Presented) The computer-readable medium of claim 21, wherein said polynomials and ranges are determined such that the maximum error between said output values and the power function is approximately equal for each of said ranges.